

REMARKS**I. Status of the Claims:**

Claims 1-22 are currently pending.

By this Amendment, claims 23 and 24 have been added. No new matter has been introduced by this Amendment. Upon entry of the Amendment, claims 1-24 would be pending.

II. Objection to the Title:

The Examiner has objected to the title and requests a new title that is indicative of the invention to which the claims are directed. To address this objection, Applicants have amended the title to read as follows:

IMAGE SENSING APPARATUS EMPLOYING DARK IMAGE DATA TO
CORRECT DARK NOISE

In view of these changes, reconsideration and withdrawal of the objection of the title are respectfully requested.

III. Rejection Under 35 U.S.C. §102(e):

Claims 1-22 have been rejected under 35 U.S.C. §102(e) as being anticipated by Bakhle et al. (U.S. Patent No. 6,061,092). Applicants respectfully disagree with these rejections for the following reasons.

1. Claim 1:

Claim 1 is directed to an apparatus including an image sensing device, a signal processing device and an instruction device. The signal processing device performs first image

sensing operation for making the image sensing device perform an image sensing operation in an exposure state to obtain a sensed image signal, and a second image sensing operation for making the image sensing device perform an image sensing operation in accordance with the first image sensing operation in a non-exposure state to obtain a sensed image signal. The signal processing device processes the sensed image signal obtained by the first image sensing operation by the sensed image signal obtained by the second image sensing operation. The instruction device instructs to execute a predetermined plurality times of image sensing operations with different image sensing times of the first image sensing operation. The signal processing device changes method of the second image sensing operation to the first image sensing operation in response to the instruction of the instruction device.

That is, the signal processing device is capable of changing performance of a second image sensing operation to performance of a first image sensing operation in response to the instruction of the instruction device.

Bakhle is directed to video camera which generates a stream of video frames each including a header with dark column reference data, and performs image processing, e.g., DFPN cancellation, for each frame using “pre-stored” dark images in a cache which correspond to the dark column reference data of a frame to be processed. The cache of dark images is initially populated during an initialization state (different from steady state operation of the camera system) in which dark images taken under a variety of operating environments and stored, and updated upon a significant change in operating environment (e.g., dark column reference data has changed significantly) via additional dark images maintained at the host or through acquisition of dark image for the changed operating environment. See Col. 6 and 7.

Bakhle is silent as to any capability of changing a second image sensing operation (e.g., non-exposure state) to a first image sensing operation (e.g., exposure state) or such change being performed in response to instruction of an instruction device, as claimed. Further, the Office Action does not address this feature with sufficient particularity, e.g., where such change is taught in Bakhle and by what instruction device and instruction. See Office Action, page 3 (discussing the subtraction process in Bakhle).

As such, Bakhle does not disclose or suggest a signal processing device changing method of the second image sensing operation to the first image sensing operation in response to instruction of the instruction device. Accordingly, claim 1 and its dependent claims are distinguishable over the cited reference.

1. Claim 12:

Claim 12 is directed to an apparatus which includes an image sensing device, a signal processing device and an instruction device. The signal processing device performs a first image sensing operation for making the image sensing device perform an image sensing operation in a exposure state to obtain a sensed image signal, and a second image sensing operation for making the image sensing device perform an image sensing operation in a non-exposure state to obtain a sensed image signal. The signal processing device also processes the sensed image signal obtained by the first image sensing operation by the sensed image signal obtained by the second image sensing operation. The instruction device instructs to execute a predetermined plurality times of image sensing operations with different image sensing times of the first image sensing operation. The signal processing device inhibits the second image

sensing operation from being made for each image sensing operation in response to the instruction of the instruction device.

As discussed above, Bakhle is directed to video camera which generates a stream of video frames each including a header with dark column reference data, and performs image processing, e.g., DFPN cancellation, for each frame using “pre-stored” dark images in a cache which correspond to the dark column reference data of a frame to be processed. The cache of dark images is initially populated during an initialization state (different from steady state operation of the camera system) in which dark images taken under a variety of operating environments and stored, and updated upon a significant change in operating environment (e.g., dark column reference data has changed significantly) via additional dark images maintained at the host or through acquisition of dark image for the changed operating environment. See Col. 6 and 7.

Bakhle is silent as to any capability of the signal processing device to inhibit the second image sensing operation (e.g., non-exposure state) from being made for each image sensing operation in response to the instruction of the instruction device. Further, the Office Action does not address this feature with sufficient particularity, e.g., where such inhibiting is taught in Bakhle and by what instruction device and instruction. See Office Action, page 3 (discussing the subtraction process in Bakhle).

As such, Bakhle does not disclose or suggest a signal processing device inhibiting the second sensing operation from being made for each image sensing operation in response to the instruction of the instruction device. Accordingly, claim 12 and its dependent claims are distinguishable over the cited reference.

CONCLUSION

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims and allowance of this application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4503, Order No. 1232-4602. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4503, Order No. 1232-4602. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
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Dated: 3/22/04

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